Please replace all prior claim listings as described below:

1. (Original) A method of inspection of an ion implanted semiconductor wafer, comprising:

   a) illuminating a surface of the ion implanted semiconductor wafer with a flood illumination of monochromatic light of wavelength λ_I, the flood illumination illuminating at least an area A of the wafer, the implanted surface having Raman active features induced by the ion implantation; then

   b) imaging the implanted surface of the wafer using light scattered from the wafer of a wavelength which is Raman shifted in frequency from the light of wavelength λ_I;

   c) illuminating an area A of the surface of a featureless uniformly Raman Scattering material with the same illumination system as step a); then

   d) imaging the area A of the surface of the featureless uniformly Raman Scattering material using light scattered from the surface of the uniformly Raman Scattering material of a wavelength which is Raman shifted in frequency from the light of wavelength λ_I, the light imaged with the same imaging system as step (b); and

   e) correcting the image of the implanted area using the results of the imaging of the area of the surface of the uniformly Raman Scattering material.

2. (Original) A method of inspection of an ion implanted semiconductor wafer, comprising:

   a) illuminating an implanted surface of the ion implanted semiconductor wafer with a flood illumination of monochromatic light of wavelength λ_I, the flood illumination illuminating at least an area A of the wafer, the implanted surface having Raman active features induced by the ion implantation; then

b) imaging the implanted surface of the wafer using light scattered from the wafer of a wavelength which is Raman shifted in frequency from the light of wavelength λ_I; then

c) analyzing the image for evidence of inclusions having a Raman shift peak having a full width at half maximum above 4 cm^{-1} but below 30 cm^{-1}.

3. (Original) A method of inspection of an ion implanted semiconductor wafer, comprising:

a) illuminating an implanted surface of the ion implanted semiconductor wafer with a flood illumination of monochromatic light of wavelength λ_I, the flood illumination illuminating at least an area A of the wafer, the implanted surface having Raman active features induced by the ion implantation; then

b) imaging the implanted surface of the wafer using light scattered from the wafer of a wavelength which is Raman shifted in frequency from the light of wavelength λ_I; then

c) analyzing the image for evidence of inclusions having a fundamental or second order Raman shift peak having a full width at half maximum above 30 cm^{-1} but below 100 cm^{-1}.

4. (Original) The method of claim 2, wherein the semiconductor wafer is a silicon wafer and the inclusion is an inclusion having a hexagonal phase and having a Raman shift of approximately 508 cm^{-1}.

5. (Canceled)

6. (Previously presented) A method of inspection of an ion implanted semiconductor wafer, comprising:

a) illuminating an implanted surface of the ion implanted semiconductor wafer with a flood illumination of monochromatic light of wavelength λ_I, the flood illumination illuminating at least an area A of the wafer, the implanted surface having Raman active features induced by the ion implantation; then

b) imaging the implanted surface of the wafer using light scattered from the wafer of a wavelength which is Raman shifted in frequency from the light of wavelength λ_I; then

c) comparing intensity of a first image feature corresponding to an ion implanted region with intensity of a second image feature corresponding to an unimplanted single crystal semiconductor region, the first and second image features on the same image in the area A of the wafer.

7. (Previously presented) A method of inspection of an ion implanted semiconductor wafer, comprising:

a) illuminating an implanted surface of the ion implanted semiconductor wafer with a flood illumination of monochromatic light of wavelength λ_I, the flood illumination illuminating at least an area A of the wafer, the implanted surface having Raman active features induced by the ion implantation; then

b) imaging the implanted surface of the wafer using light scattered from the wafer of a wavelength which is Raman shifted in frequency from the light of wavelength λ_I; then

c) comparing intensity of a first image feature corresponding to an ion implanted region with intensity of a second image feature corresponding to an unimplanted

single crystal semiconductor region, the first and second image features on the same image in the area A of the wafer,

wherein the ion implanted wafer is unannealed after implantation, and wherein the ion implanted region corresponding to the first image feature has insufficient implantation dose to fully amorphize the surface of the semiconductor wafer.

8. (Previously presented) A method of inspection of an ion implanted semiconductor wafer comprising:

a) illuminating an implanted surface of the ion implanted semiconductor wafer with a flood illumination of monochromatic light of wavelength λ_I, the flood illumination illuminating at least an area A of the wafer, the implanted surface having Raman active features induced by the ion implantation; then

b) imaging the implanted surface of the wafer using light scattered from the wafer of a wavelength which is Raman shifted in frequency from the light of wavelength λ_I; then

c) comparing intensity of a first image feature corresponding to an ion implanted region with intensity of a second image feature corresponding to an unimplanted single crystal semiconductor region, the first and second image features on the same image in the area A of the wafer,

wherein the ion implanted wafer is unannealed after implantation, and wherein the ion implanted region corresponding to the first image feature has insufficient implantation dose to fully amorphize the surface of the semiconductor wafer; and

wherein a bright field optical image of the first image feature has comparable intensity as a bright field optical image of the second image feature.

9. (Previously presented) A method of inspection of an ion implanted semiconductor wafer comprising:

a) illuminating an implanted surface of the ion implanted semiconductor wafer with a flood illumination of monochromatic light of wavelength λ_I, the flood illumination illuminating at least an area A of the wafer, the implanted surface having Raman active features induced by the ion implantation; then

b) imaging the implanted surface of the wafer using light scattered from the wafer of a wavelength which is Raman shifted in frequency from the light of wavelength λ_I; then

c) comparing intensity of a first image feature corresponding to an ion implanted region with intensity of a second image feature corresponding to an unimplanted single crystal semiconductor region, the first and second image features on the same image in the area A of the wafer,

wherein the ion implanted wafer is annealed after implantation, and wherein the ion implanted region corresponding to the first image retains at least one defect after the annealing.

10. (Previously presented) A method of inspection of an ion implanted semiconductor wafer comprising:

a) illuminating an implanted surface of the ion implanted semiconductor wafer with a flood illumination of monochromatic light of wavelength λ_I, the flood illumination illuminating at least an area A of the wafer, the implanted surface having Raman active features induced by the ion implantation; then

b) imaging the implanted surface of the wafer using light scattered from the wafer of a wavelength which is Raman shifted in frequency from the light of wavelength λ_I; then

c) comparing intensity of a first image feature corresponding to an ion implanted region with intensity of a second image feature corresponding to an unimplanted single crystal semiconductor region, the first and second image features on the same image in the area A of the wafer,

wherein the ion implanted region corresponding to the first image contains hexagonal phase defects.

11.-13. (Canceled)

14. (Currently Amended) A method of inspection of an ion implanted semiconductor wafer comprising:

a) illuminating an implanted surface of the ion implanted semiconductor wafer with a flood illumination of monochromatic light of wavelength λ_I, the flood illumination illuminating at least an area A of the wafer, the implanted surface having Raman active features induced by the ion implantation; then

b) imaging the implanted surface of the wafer using light scattered from the wafer of a wavelength which is Raman shifted in frequency from the light of wavelength λ_I, wherein the imaging is in a first spatial dimension and one Raman shifted wavelength dimension, wherein a second spatial dimension is kept constant, then

c) imaging a number of further images, wherein each image is imaged using light from a different value of the second spatial dimension~~; and~~

~~wherein the imaging is in a first spatial dimension and one Raman shifted wavelength dimension, wherein a second spatial dimension is kept constant~~.

15.-17. (Canceled)

18. (Previously presented) A method of inspection of an ion implanted semiconductor wafer, comprising:

a) illuminating an implanted surface of the ion implanted semiconductor wafer with a flood illumination of monochromatic light of wavelength λ_l, the flood illumination illuminating at least an area A of the wafer, the implanted surface having Raman active features induced by the ion implantation; then

b) imaging the implanted surface of the wafer using light scattered from the wafer of a wavelength which is Raman shifted in frequency from the light of wavelength λ_l; then

c) imaging a further plurality of images, each of the imaging using a different illuminating monochromatic wavelength λ_p, and wherein the depth distribution of the features producing the Raman shifted light for each illuminating wavelength λ_p is calculated from the plurality of images.